DOCUMENT RESUME

ED 178 558 TM 009 565

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TITLE Aptitude and Reading Tests for Consideration in Designing a Screening and Diagnostic Test Battery.
PUB DATE May 79
NOTE 31p.

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Aptitude Tests; Content Reading; *Diagnostic Tests; *Educational Diagnosis; Institutional Role; Postsecondary Education; Program Coordination; Reading Comprehension; Reading Skills; *Reading Tests; Screening Tests; Study Skills; *Technical Institutes; *Testing Programs; Test Selection; Vocabulary Skills
IDENTIFIERS Connecticut

ABSTRACT

Aptitude and reading tests to be administered to technical college students are discussed in considering the design of a screening and diagnostic test battery. Diagnosis is condidered as a series of sequential steps: screening; testing; individualized program planning; program implementation; and investigation of the causes of reading difficulty. Reading skills necessary for successful functioning are discussed: comprehension in the context areas; vocabulary; comprehension; reading rate; and study skills. Test selection for inclusion in the test battery is based on the identification of the skills considered necessary for academic achievement. Guidelines for examining test characteristics are discussed: general nature of the test, such a kind of test, validity data, test forms, testing time, directions for administration; norm group; kinds of scores; and nature of the information provided by the test. To implement a diagnostic and screening program, three measures are recommended: (1) program coordination by a certified reading consultant; (2) an institutional commitment to the students who cannot attain acceptable skill development levels; and (3) resolution of such issues as administrative procedures, services offered, communication links, and evaluation methods and recordkeeping. A list of aptitude and reading tests is appended for potential inclusion in the battery. (MH)

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APTITUDE AND READING TESTS FOR CONSIDERATION IN DESIGNING A SCREENING AND DIAGNOSTIC TEST BATTERY

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May, 1979

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Pages: 28

INTRODUCTION

> The reason we evaluate is to enable educators to make better decisions. Evaluation is an unashamedly practical undertaking. Evaluators want to improve education. Researchers are sometimes content to describe the world but evaluators want to make it better. (Popham, 14).

Purpose of the College - A state technical college in Connecticut exists to prepare fully qualified engineering technicians who are able to work as part of an engineering team. Each program is directly linked to the employment opportunities in local industry. Approximately forty-two different programs are offered in the five Connecticut technical colleges in the areas of engineering, manufacturing, construction, industrial management, data processing, communication graphics, and science-related areas.

The Goals of the Screening and Diagnostic Procedures at the Technical College

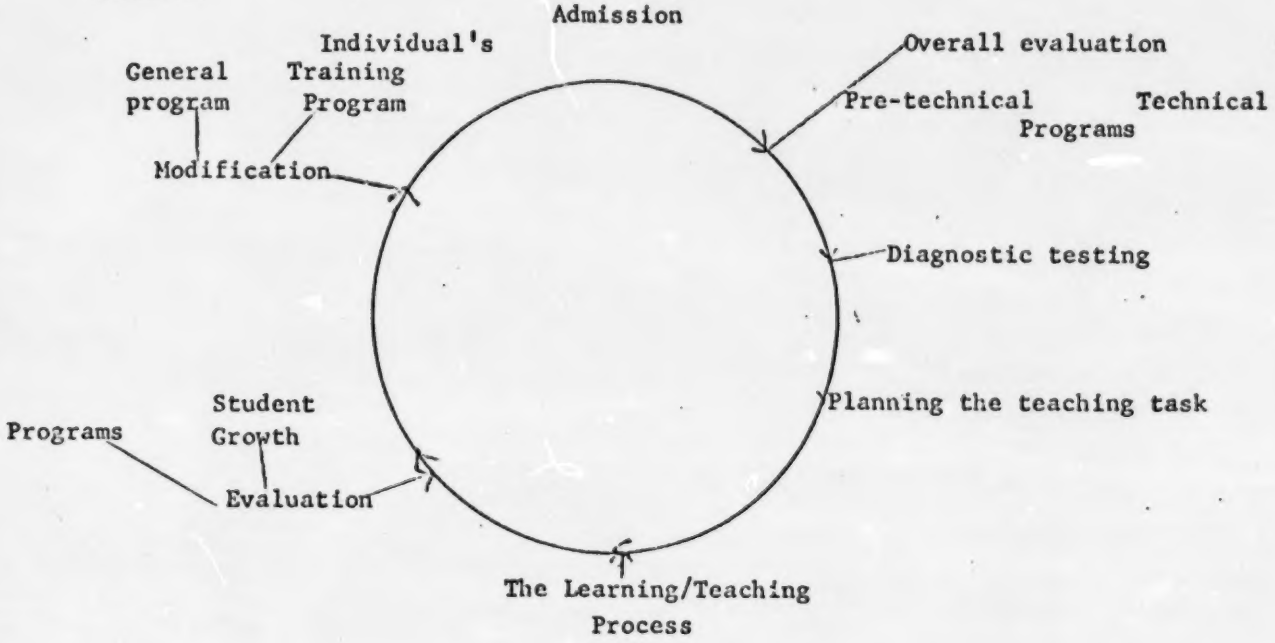
"Open admissions" policies have frequently brought into the technical colleges in Connecticut as elsewhere a group of "needy" students who have experienced difficulty with school work. Such students are often in the lowest third of their high school graduating class and suffer the accrued effects which skill deficiencies and repeated academic failures bring. The general goal of this screen procedure consequently is to identify students of high risk who require assistance in building skills in reading if they are to persist in a technical program. Without diagnostic and remedial intervention such students are not up to the academic task and often flee.

The diagnostic and screening procedures in a technical college setting have several goals. Initially, it attempts to determine a student's needs in relation to the curricular demands and teacher expectation.

Such procedures also serve to:

1. Assist in the placement of students on the basis of their general ability and measured skill development;
2. Identify each student's strengths and weaknesses so that an individualized remedial or developmental reading program can be developed;
3. Assist in creating and developing curriculum (including materials and methods) in the skill areas;
4. Establish a basis upon which to measure student growth;
5. Provide initial data on the level of skill development of the students who enter the college (needs assessment);
6. Curb the attrition rate.

The Nature of the Diagnostic Process - "Diagnosis is a matter of making qualitative judgments." (Estes, 49). It is an ongoing process of data gathering on the part of an evaluator who utilizes a variety of sources to draw conclusions about the potential, current functioning, and placement of students. As perceived by this author, the diagnostic and remedial process has continual implication for the student.



This ongoing process begins with attempting to identify the student's unique needs. The chart below is a summary of the initial steps to be taken by an experienced teacher and diagnostician in a group setting.

Sequence in the Diagnostic Process	Kind of Test Which Provides the Necessary Information
What can the student do? How well can a student read?	Reading achievement test
What is the student's potential?	Measure of general aptitude
What are the student's strengths and weaknesses in reading skills?	Diagnostic reading test
By what mode does the student learn best?	A measure of learning style
What is the student's performance level in other areas?	Comparison of scores in language arts, mathematics, science
How does a student's achievement compare to measures of his potential?	Discrepancy between measured ability and achievement

Diagnosis should be directed toward formulating specific educational strategies and materials which will minimize the conditions which interfere with a student's learning while utilizing his strengths. This requires a careful competent diagnostician who recognizes that skill deficiencies often have several contributing causes and that an accurate picture of the kind and extent of a student's difficulties only emerge from analyzing a variety of sources.

The Sequential Steps in Diagnosis - There are five sequential steps to the diagnostic process.

Step One - The Overall Screening Process. All students who enter a technical college will participate in a screening procedure which includes a measure of general aptitude and an achievement test in reading.

Step Two - Diagnostic Testing. Students who fall below the acceptable limits of skill development (locally established limits) as well as students who exhibit a significant discrepancy between their measured aptitude and current level of skill development should sit for diagnostic testing in reading to identify their particular strengths and weaknesses.

Step Three - The Remedial Program Planning. An examination of student's characteristics (including learning style) would be translated into a practical remedial program tailored to the needs of the student.

Step Four - The Program. The student begins working on his individualized program.

Step Five - Detailed Investigation of the Correlates of the Reading Difficulty. If a student is not progressing in his individualized program, further testing of a more clinical nature might be offered.*
(De Chant, 342)

*Other areas such as mathematics and science can be treated in a similar way.

REVIEW OF THE LITERATURE

At the onset of this project an ERIC search was done on "Placement Examination for Entering College Freshmen." Of the eight studies which comprise Research No. 790-558-1, only one article addresses the topic directly. After reviewing over 90 journal and yearbook articles on the diagnostic and remedial assistance programs at the college level, several generalizations can be made. First, most of the articles describe the "new student" and the "threats" he or she brings to the college setting. Second, discussion centers upon the structure, content, and administration of reading and language arts programs rather than upon the manner in which the students' strengths and weaknesses are determined. Next, there is a paucity of research on the procedures and criteria used in test selection. And, finally, there is little in the literature to indicate how the data from testing is utilized in the placement of the students or how the effectiveness of the test instruments is evaluationed. While the "testimonials" from students reported in the literature about their improvement as a consequence of a remedial program were of interest, they offered little guidance to a committee on test selection. Assistance was found, however, in the resource textbooks in reading for teachers and reading consultants at the elementary and secondary school levels.

This section is divided into the following areas: 1) a brief history of remedial assistance in reading at the college level; 2) a summary of the major characteristics of the "new student;" and 3) an example of the research in the area of placement at the college level.

History of College Reading Programs - In the early 1940's students attending aristocratic colleges were thought to be suffering from "poor study habits" if they did not measure up to academic standards. During the next two decades poor academic performance was squarely attributed to a student's low ability or on his psychological-motivational blocks to learning. By the mid-1960's the socio-cultural factors took precedence as educators pointed toward deprivation in home and school

backgrounds as the principal reasons for failure. Roueche was to find out that by 1968 "Open Admissions" compounded the problems. Seventy percent of the freshmen entering California community colleges failed the English qualifying examination, while at Forest Park Community College in St. Louis one-half of the on-campus students were in academic difficulty. (Cross, p. 24-28)

Paralleling these shifts in focus on the causes of poor performance was the increase in the number of remedial reading programs being offered at the college level. When Parr surveyed the remedial programs from 1929-1939, he found them to exist in 82 out of 158 colleges. By 1950-1959, Causey founded the National Reading Conference, the first directories were established, and researchers found 418 reading programs at the college level. Ten years later at least 70% of the college's responding to Shaw's survey had remedial reading programs. By this time the college presidents had come to support such efforts and the Directory of Educational Development Laboratories appeared. (Love, p. 75-80)

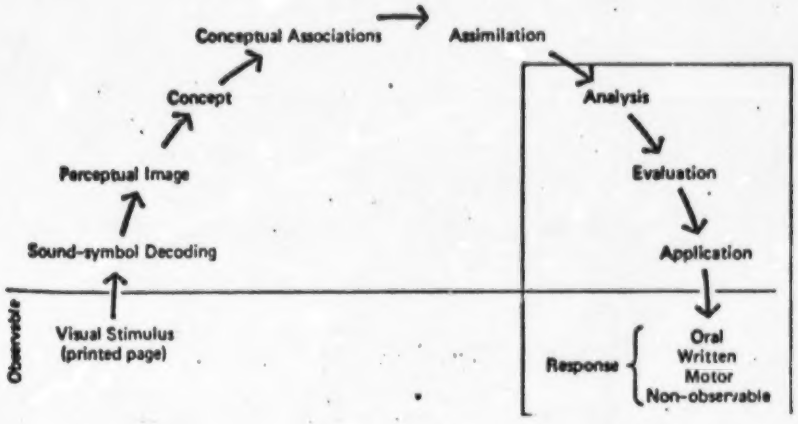
Characteristics of the "New Students" - The Carnegie Commission reported that the "Open Door" policy at two year colleges has attracted the marginal, high risk student who comes for study not out of an enjoyment of learning but from the realization that training is the way to a better life. (Ahrendt, p. 2) While such students were welcomed into the learning centers, they were left to grapple with an incomplete model. Once admitted they were to find little support or remedial assistance in the basic communication skill areas. Their poor self image as learners increased. The "new student" could not read, write, listen, interact, or communicate in an effective-enough way to remain! The cycle of failure was doomed to repetition; the attrition rate of the students soared. It is hypothesized that an individualized remedial assistance program will offer such intervention to curb such student flight.

An Example of the Literature - In 1973 Robert Clark published the results of a survey of 95 California community colleges to determine what test materials are used in the matriculation and placement of new students. Of the 77 responding colleges,

twenty-seven reported an absence of a testing program. Most of the 50 colleges with testing programs reported that measurement was done in the areas of reading, language arts, mathematics, and general ability. An analysis of the data reveals that no significant percentage of responding colleges believe that they have found a testing program they feel is "the answer." Dissatisfaction rests in the areas of high cost, excessive test administration time, a lack of correlation between test performance and achievement, and the absence of a satisfactory "package" to indicate how each student reads, writes, and computes. (Clark, 11)

READING SKILLS CRITICAL TO SUCCESSFUL ACADEMIC FUNCTIONING AT A TECHNICAL COLLEGE

Reading in college is a purposeful act. It is a tool by which to gain, analyze, and apply knowledge. Harris and Smith depict the complexity of the task as they trace the path taken by a reader in responding to a printed page.



(Harris and Smith, p. 342)

The Adler-Van Doren Model of the steps to maturity in reading describes college level reading as that which enables the reader to inspect and to analyze a text as well as to go beyond the text in gaining meaningful information. (Estes, p. 15) The model is presented in Figure I. (Estes, p. 15) The college student, in sum, is expected to be a competent, versatile, highly skilled functional reader.

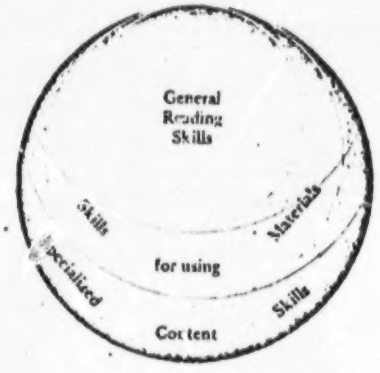
There are situational realities which complicate the matter. The volume of knowledge and sophisticated technological advancements place a burden on present students to learn much more information than was previously demanded. Secondly, students must understand the organization patterns of the teacher's presentation and the text respectively as well as integrating the two resources with past informational and experience for comprehension. Finally, each content area, that is, science, mathematics, social studies, and the language arts, makes unique demands upon the reader. Good students need careful instruction to cope with such diverse requirements. The many students who come to this stressful situation unprepared

Larry Harris and Carl Smith, Reading Instruction Through Diagnostic Teaching. New York: Holt, Rinehart, and Winston, Inc. Permission Given to Reproduce by Holt, Rinehart, and Winston, Inc.

must be identified and offered assistance if they are to be able to the task. (Auckerman, p. 10)

What are the skills a student needs for successful participation in and completion of a two year technical engineering program? This is the question a committee on testing must address before a testing program can be initiated. This section offers guidelines for addressing this question from two perspectives; Part One is a graphic presentation of those skills perceived to be critical to succeeding in a technical college curriculum and Part Two, contains a brief discussion of the sub skills in the areas of vocabulary, comprehension, reading rate, and the study skills.

Reading Skills in the Content Areas - Reading in each content area requires general skills as well as specific skills which are geared to the format and organization of ideas in the particular discipline. Harris and Smith view it in this way:



(Harris and Smith, p. 381)

In mathematics, for example, the reader must understand an abstract symbol system and a format which presents much information in a succinct fashion. In a literature course, however, the student meets lengthy passages and is asked to respond to an author's style, purpose, use of words in context, and the development of the plot and the characters. To complete the task in each instance requires general skills which can be carefully applied to the specific demands of the situation.

The following chart is a compilation of the critical reading skills in science,

Larry Harris and Carl Smith, Reading Instruction Through Diagnostic Teaching, New York: Holt, Rinehart, and Winston, Inc. Permission Given to Reproduce: Holt, Rinehart, and Winston, Inc. 1

mathematics, English, and the social sciences. Such authors as Herber, Zintz, Harris and Smith, Strang, Shepherd, Aukerman, Karlin, DeChant, Robinson and Albert Harris were reviewed in its preparation.

CURRICULAR AREA	SKILLS	SUB-SKILLS AND ABILITIES
SCIENCE	VOCABULARY General Scientific	Basic sight vocabulary Decoding skills Ability to conceptualize (mental aptitude)
	COMPREHENSION Literal	Grasping details Categorizing Classification Generalization Perceiving Relationships Contrast and comparison Sequencing
	Inferential	Problem-solving Grasping the main idea Drawing inferences Drawing conclusions Judging the revelance and value of data Projecting outcomes
	RATE	Skimming Scanning Versatility in speed based on the difficulty of the material
	STUDY AND LOCATION SKILLS	Comprehending the format of the chapters (topographical aids) Following directions in experiments Outlining Understanding graphs, tables, charts, and formulas
MATHEMATICS	VOCABULARY General Specific Symbols	Recognizing basic mathematics symbols Basic sight vocabulary Decoding skills Reasoning numberical ability (mathematics aptitude) Understanding the grammatical structure of mathematics

CURRICULAR AREA	SKILLS	SUB-SKILLS AND ABILITIES
MATHEMATICS (contd)	COMPREHENSION	
	Literal	Reading for detail Drawing relationships Sequencing Understanding a mathematics sentence-problem
	Inferential	Understanding the patterns, strategies, and principles of mathematics Problem solving Making inferences Drawing conclusions Grasping the main idea
	RATE	Reading with precision at a slowed rate due to the succinct organization and presentation of the mathematics sentence
	STUDY SKILLS	Following directions Reading graphs, charts, tables, and formulas Comprehending the format of the chapter (topographical aids)
LITERATURE	VOCABULARY	Basic sight vocabulary Decoding skills Conceptualizing Grasping meaning from context Understanding modifiers and referents Understanding the denotation and connotation of words
	COMPREHENSION	
	Literal	Reading for details Grasping relationships, ex. plot and character development Sequencing events
	Inferential	Grasping the main idea Drawing inferences Developing anticipation skills Drawing conclusions
SOCIAL SCIENCES	VOCABULARY	
	General Specific	Basic sight vocabulary Decoding skills Conceptualizing abstract ideas (ex. liberty, picture)

CURRICULAR AREA	SKILLS	SUB-SKILLS AND ABILITIES
SOCIAL SCIENCES (contd)	COMPREHENSION Literal	Grasping details Understanding relationships (sequence, comparison-contrast, cause and effect, etc.) Understanding primary source materials.
	Inferential	Recognizing the main idea Drawing conclusions Recognizing the difference between fact and opinion Drawing inferences Recognizing propaganda
	RATE	Skimming Scanning Comprehending the format of a variety of written sources: Text Primary documents Newspapers, Magazines
	STUDY AND LOCATION SKILLS	Outlining Understanding graphic aids - maps, charts, tables, etc. Comprehending the format of chapters Developing research skills

A BRIEF CONSIDERATION OF THE SUB-SKILLS IN VOCABULARY, COMPREHENSION, RATE AND STUDY SKILLS

Vocabulary - If a reader is to comprehend what he reads he must give meaning to a written symbol. A vocabulary analysis, therefore, becomes an essential part of a reading diagnosis as a means of assessing the meaning which a student has for words. This is a complicated process which involves determining a student's basic sight vocabulary and his decoding skills, as well as assessing the factors which contribute to his vocabulary deficiencies. Is the lack of vocabulary development attributable to a bleak experiential background or to an inability to conceptualize? The vocabulary sub-skills are outlined below:

VOCABULARY SUB-SKILLS

SIGHT WORDS	TYPES OF DECODING SKILLS
Increasing words that are recognized on sight	Phonetic analysis Structural analysis

Use of semantic clues
Use of context clues
Associational techniques

Comprehension - Measuring comprehension, which is the object and product of reading is a very complex procedure. It is conceptualized by Harris and Smith in Figure 2, to be the sum of the interrelationships between a reader's basic intelligence, background experience, language skills, thinking skills, and reading purpose. (Harris, 242) Emerald DeChant lists 21 characteristics of a good comprehender. Among these are the following ten items:

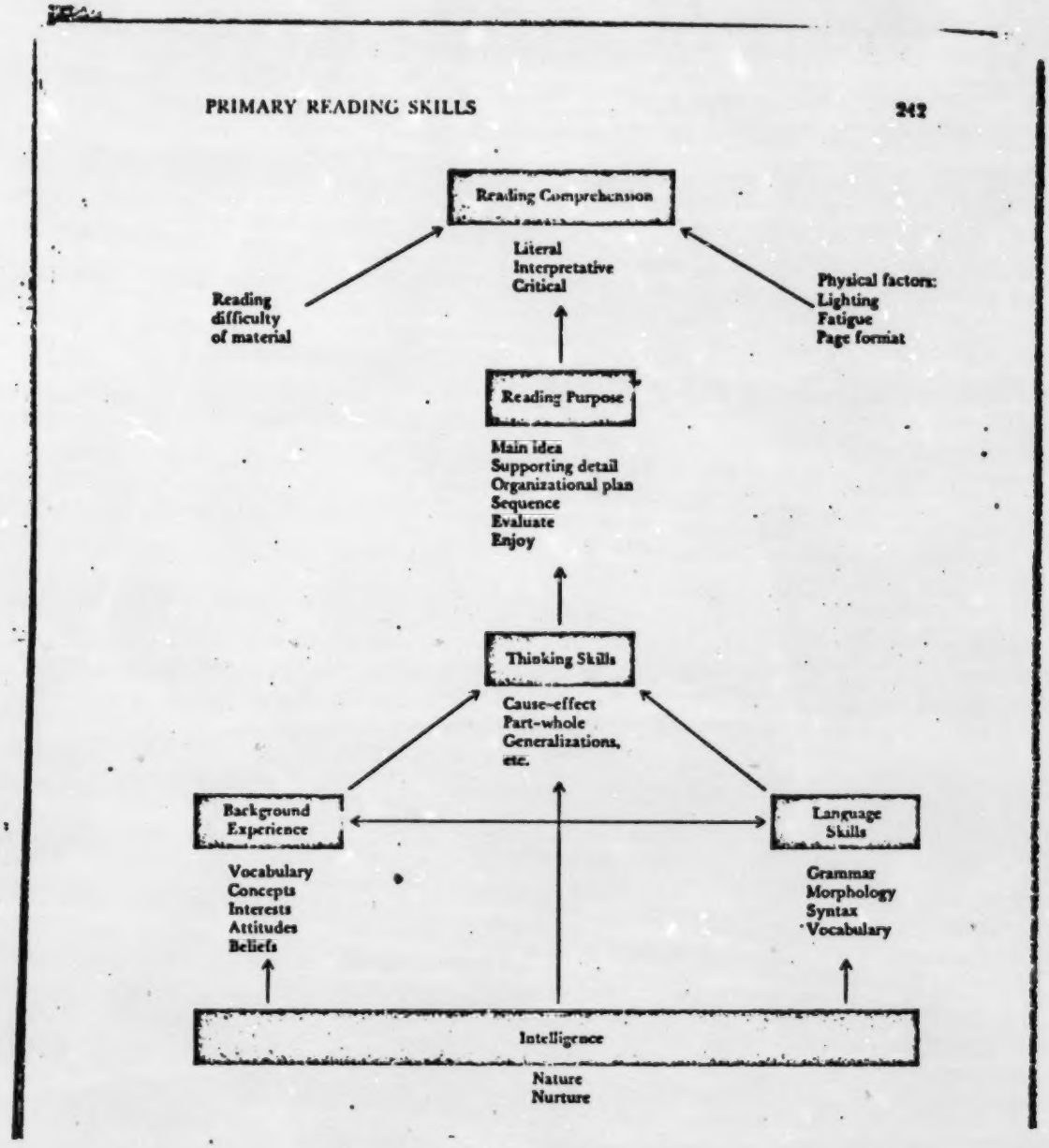
1. the ability to associate experiences and meaning with graphic symbols;
2. the capability to give meaning to units of increasing size, that is, to phrases, clauses, sentences, paragraphs, and whole selections;
3. the ability to detect and to understand main ideas;
4. the ability to understand and interpret the underlying organization of the reading selection;
5. the capacity to perceive relationships such as parts to whole, cause to effect, general to specific, place, sequence, size, and time;
6. the ability to make inferences and draw conclusions;
7. the ability to anticipate outcomes;
8. the skill to recognize and understand the author's purpose;
9. the capability to retain ideas; and
10. an ability to apply ideas and integrate them with past experiences. (DeChant, 245-6)

There are various levels of comprehension including the literal and inferential levels. On the literal level of comprehension, the reader understands the meaning of what is directly stated. (Karlin, 150) He is able to decode and translate the symbols into an understandable whole and retain it. As Estes' remarks: "What the reader knows is more important to comprehension than what the author says" at this level. (Estes, 117)

At the higher inferential level of comprehension, the reader is required to interpret and to apply what is written. Most assignments at the college level require this level of comprehension as well as the ability to critically appraise the reading selection.

FIGURE II

A READING COMPREHENSION MODEL BY HARRIS AND SMITH



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Versatility in Rate - The rate of comprehension varies with the type of reading material, the level of its difficulty, and the purposes of the reader. A versatile college reader should be adept at skimming and scanning techniques. Skimming is preview reading. The reader uses this quick "look" at the material when focusing upon the introductory paragraphs, table of contents, preface, headings, graphic aids, and summaries to grasp the structure and the key concepts in the reading material. Scanning is a technique for quickly finding the key ideas or specific information from the surrounding text.

The Study Skills - Even a poor student can become a better reader with study techniques. Herber defines study skills as work skills that produce useful knowledge for the learner, that is, techniques which help the student to develop, remember, and use ideas. (DeChant, 273) Study skills can be divided into two sections

LOCATING INFORMATION	ORGANIZING INFORMATION
SQ3R technique	SQ3R technique
Using references such as dictionaries, encyclopedias	Outlining
Using the library	Notetaking
Using graphic aids including:	Summarizing
charts	
maps	
graphs	
pictures	

Organizing information is a highly personal and highly critical procedure. The key skills involved in this process are sub-divided below:

STUDY SKILLS	SUB-SKILLS
Outlining	Identifying main and supportive ideas
	Using vertical outlines
	Using graphic patterns
Using Graphic Aids	Understanding symbols, scales, and directions
	Recognizing distortions
	Evaluating the data from aids in relation to:
	Kind of data
	Unit of measurement
	Arrangement of data
	Significance of information

STUDY SKILLS (contd)	SUB-SKILLS (contd)
Following Directions	Grasping the relationship between purpose and direction Sequencing Reading with precision
Typographical Aids	Using such aids as the preface, forward, introduction, summaries, index, table of contents, headings, italics, bold print, etc.
Summarizing	Identifying the main idea.the appropriate supportive data

A myriad of skills are necessary if a student is to become a successful college reader*

*Included in the examination of study skills should be an informal assessment of the student's ability to use the PQ4R method of analyzing a chapter. (see works by Helen Robinson, Ellen Thomas, and H. Alen Robinson)

TEST SELECTION PROCEDURES AND RESULTING TEST BATTERY

The actual selection of a screening and diagnostic battery test can only proceed after an identification of the skills which are salient to success in a technical college setting has occurred.

This section is divided into two areas: 1) a brief report on the essential criteria for determining the quality of the construction and content of each test; and, 2) a discussion of the tests which are recommended for incorporating into a diagnostic and screening battery.

Review of the Criteria Used in Test Selection - The technical merits of a particular test and the appropriateness of its content must be of prime concern as test selection proceeds. The examiner's manual and the technical report which accompanies each test, as well as the comments of experts in testing and measurement, should be thoroughly investigated and compared. The central question to be addressed is will the test provide the desired information in a reliable and valid way? While one test may be structurally sound, it may not contain items which are related to a technical college curriculum. Another test may contain appropriate test items yet suffer from faulty construction and poor reliability or validity. The following questions are guidelines for examing the characteristics of a test.

GENERAL NATURE OF THE TEST

What kind of test is it?
- Group or individual
- Criterion or norm referenced
- Speed or power
- Achievement or diagnostic

What kind of validity data is offered?
- Content
- Predictive
- Concurrent

How many forms of the test are offered?
What is the testing time?
What is the testing time?
Are the directions clear and appropriate?
How is the test divided?

NORM GROUP

Is the norm group representative of the population of students at technical colleges?
What time of the year is the test normed?
Are there norms for students at a two year technical college?

SCORES PROVIDED

What scores are provided? (stanines, percentiles)
Can the scores be compared across areas?

NATURE OF THE INFORMATION PROVIDED

What information does the test provide?
What interpretative data is provided? grouping recommendation, student profiles
How good are the interpretive materials?
How are the scores reported?

An Example of a Diagnostic and Screening Battery of Tests - Test instruments are discussed in sequential order according to the type of information they contribute to the diagnostic profile of a student and how each test can be utilized in developing a composite of the individual's strengths and weaknesses is also discussed.

Phase 1 - Overall Screening Procedure - All incoming students would take an aptitude and reading achievement test such as the two tests suggested below:

Test	Scores Provided	Utilization
School and College Ability Test (SCAT)	Verbal Analygies Mathematics Relationships	Measure of General Aptitude - Verbal and Numerical
Nelson Denny Reading Test	Vocabulary Comprehension Rate	Measure of Reading Achievement and Needs Assessment

After examining each score, as well as the relationship between the student's measured potential and measured achievement in reading, the diagnostician can make a preliminary judgment as to which of the following categories describes the student.

ALBERT HARRIS' DIAGNOSTIC CATEGORIES

Category 1 - A student may be reading below an acceptable level yet be achieving in a range relative to his potential. Such an individual is considered to be a slow learner in reading.

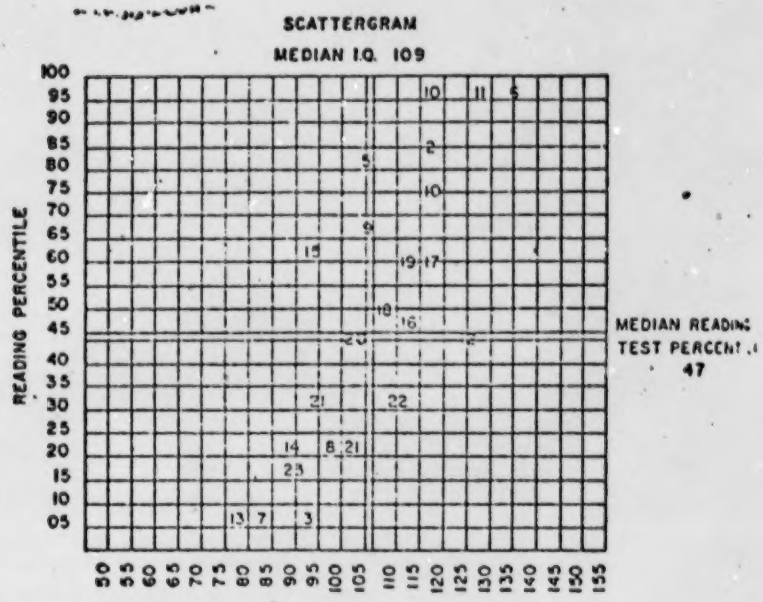
Category 2 - A student may be reading significantly below the expected level based upon his measured potential and other considerations. Such an individual is a disabled reader. If the level is extremely below expectancy the student is termed a severely disabled reader.

Category 3 - A student may be functioning at or above the acceptable level yet exhibit a significant discrepancy between his ability and achievement. Such an individual is termed an underachiever. (Harris, p. 141)

The scattergram designed by Miller exemplifies the kind of intertest comparisons which are usually made.

SCATTERGRAM FORM

TEACHER	STUDENT	CLASS	SECTION	DATE
IQ TEST				DATE
READING ACHIEVEMENT TEST				DATE



At the college level a significant discrepancy between potential and achievement is considered to be two stanines.

Phase 2 - Diagnostic Testing - Further diagnostic testing should be available to all students but required only of the students who qualify as slow readers, disabled or severely disabled readers and the underachievers. Suggested tests are outlined below:

Wilma Miller, Teaching Reading In the Secondary Schools, Springfield, Illinois: Charles C. Thomas Publisher. Permission Given to Reproduce : Charles C. Thomas Publisher.

Diagnostic Testing

Test	Scores Provided	Utilization
Stanford Diagnostic Reading Test	Vocabulary Inferential Reading Literal Reading Rate Syllabication Sound Blending Sound Discrimination Phonetic Analysis Skimming Scanning	Information on the student's performance in the listed sub-stills in reading
Botel Reading Inventory-Level HJ	Word Opposites	Information on word recognition and conceptualization skills
California Achievement Tests	Reference Skills Study Skills	Information on relevant functional reading skills, such as, alphabetizing, outlining, locational skills understanding graphs, charts, etc.
An Educational Learning Style Inventory		Information on preferred learning style
Diagnostic Interview	Ability to Communicate Ideas Use of Sentence Structure Spoken Vocabulary	Indication of student's verbal communication skills, speech patterns, and motivation

Phase 3 - Individualized Testing

Once a student is participating in an individualized corrective or remedial reading program, further diagnostic testing becomes a part of the on-going activity in the classroom through such formal and informal instruments as a Classroom Reading Inventory and Oral Reading Tests. At some point, however, a student may be referred for additional testing if the anticipated progress has not occurred. Such an evaluation of the student's learning difficulties may include some of the selected tests in the following areas:

AREA AND TEST	TEST	SCORES AND INFORMATION AND UTILIZATION
AUDITORY: ACUITY	Audiometer	Measure of hearing reception
AUDITORY: DISCRIMINATION	Wepman Auditory Discrimination Test	Ability to discriminate between similar and same words

AREA (contd)	TEST (contd)	SCORES AND INFORMATION AND UTILIZATION (contd)
	Goldman-Fristoe Memory	
	I.T.P.A.	Measure of short term auditory memory
VISUAL: ACUITY	Keystone Telebinocular	Measure of visual reception
DISCRIMINATION	Bender-Gestalt Visual Motor Test	Measure of ability to visually discriminate between figures, parts to whole
MEMORY	I.T.P.A.	Measure of visual short term
	Bender Recall	Memory
PERSONALITY	Rorschach	Measure of mental flexibility and organizational ability Part to whole perceptions
	Thematic Apperception Test	Measure of organizational and sequencing ability Measure of the inner needs and the perceived environmental press
INDIVIDUAL INTELLIGENCE	Wechsler Adult Intelligence Scale	Verbal Performance, full scale I.Q. score Measure of functioning on 12 subtests related to intelligence

Diagnosis is an on-going activity which is an integral part of a screening process and the subsequent remedial or corrective program. Every participating student is expected to change. When he or she does, it should be accompanied by an adjustment in instruction. Most often this is a collaborative effort between the student and the teacher in the classroom setting. When the student does not change in the anticipated manner, further individualized testing should occur in the hopes of interrupting the unproductive cycle.

SUMMARY AND CONCLUSIONS

Summary - There are four distinct phases to the diagnostic and screening procedures in reading. The initial phase involves the measurement of all students in the areas of general ability and reading achievement. Students who are found to require additional diagnostic testing sit for further evaluation to determine the level of their functioning in the subskills in reading, their study skills, and their preferred learning style. The third phase of the diagnostic process occurs if the remedial program is not profitable for a student. Such testing can be initiated on an individual basis to further identify the factors which interfere with learning.

Conclusions - The "pay off" to an extensive diagnostic and screening process is the data it provides to the diagnostician-teacher who plans a skill development program to meet each student's particular needs. The measurement of the effectiveness of such procedures, therefore, can take two forms: 1) an examination of the extent to which the battery of tests provides an accurate profile of a student, and, 2) an assessment of the extent to which the diagnostician is able to accurately utilize the results of the testing to plan an individualized program for the student. The diagnostic testing is linked consequently to the remedial programs which follow and it often influences the format of a model remedial program.

If this program design is to be fully implemented three measures should be taken. First, such a program must be coordinated by a fully certified reading consultant. The quality of the individualized skill program offered to each student will be determined in good measure by the quality of the use made of the test data. Secondly, the college must prepare to make a commitment to the students who fall significantly below the acceptable level of skill development for a technical program and in-service training should be offered to the faculty in light of identified student needs. Finally, the following issues must be resolved concerning the diagnostic and screening procedures and the remedial assistant program in four broad areas as outlined below:

Administrative Procedures:

1. the extent of the administrative and faculty commitment to such an undertaking;
2. the financial commitment which will be made to the program;
3. the space which will be allocated for the reading laboratory;
4. the time when the diagnostic and screening procedures will be performed;
5. the priority of student placement into a remedial reading program;
6. the credit or non-credit status of the studert efforts in the program; and
7. the allocation of the responsibility for the program.

Services in the Program

1. what will be the design of the developmental and remedial assistance programs;
2. what services will be offered by the staff in the program to the students and the faculty.

Communication

1. the nature of the orientation of the students and the faculty to the diagnostic and screening procedures and remedial assistance program;
2. the mechanisms by which communication flows from the remedial staff to the faculty members concerning the needs of each student in the program;
3. the nature of the in-service training offered to the faculty.

Student Growth and Evaluation

1. the manner in which student growth will be measured;
2. the recordkeeping procedures;
3. the procedures for the evaluation of the effectiveness of the: a) diagnostic and screen procedures; b) the coordinator and supportive staff; c) the remedial and developmental reading programs, and d) the efforts of the student.

A thorough diagnostic and screening procedure offers the student an orientation to his/her studies which is realistic and individualized. Assuming the student seeks to improve his/her learning and reading ability, this testing program becomes a signal of acceptance of the student's level of functioning and of the intent of the college to help him/her to improve.

APPENDIX II

APTITUDE AND READING TESTS FOR CONSIDERATION IN DESIGNING A SCREENING AND DIAGNOSTIC TEST BATTERY

GENERAL APTITUDE TESTS

Academic Progress Tests
Analysis of Learning Potential, Advanced Level II
California Tests of Mental Maturity-Long Form-Level 5
California Test of Mental Maturity-Short Form-1963 Revision
Cognitive Abilities Test Level H
Educational Abilities Series
Henmon-Nelson Test of Mental Ability
Kuhlman Admerson Test
Lorge-Thorndike Intelligence Tests, Multi-Level Ed.
Measure of Academic Potential
Otis-Lennon Mental Abilities Test-Adv.
Otis Quick Score Test
Short Form Test of Academic Aptitude-Level 5
Slosson Intelligence Test
SRA Primary Mental Abilities Test
Test of General Abilities-Form A
*School and College Abilities Test

READING ACHIEVEMENT TESTS

California Reading Tests
Cooperative English Tests: Reading Comprehension
Gates-McGinnite Reading Tests, Survey F
Iowa Silent Reading Test, 1973-Level 3
Metropolitan Achievement Tests: Reading
Reading Examination for College Students
SRA Reading Record
Stanford Test of Academic Skills: Level III
Sequential Steps of Educational Progress-Series III
*Nelson Denny Reading Test

DIAGNOSTIC READING TESTS

Botel Reading Inventory
Diagnostic Reading Tests-Higher Level
Gates-McKillop Reading Diagnostic Test (Individualized)
Monroe Diagnostic Reading Test
Spache Diagnostic Reading Scales-Revised Ed.
SRA Reading Record (Individualized)
Woodcock Reading Mastery Test (Individualized)
*Stanford Diagnostic Reading Test

LEARNING STYLE

Mills Learning Methods Test, Revised Ed, (Individualized)

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